



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,086	01/09/2004	David S. Lawrence	96700/860	8599

7590 11/12/2008
Alan D. Miller
AMSTER, ROTHSTEIN & EBENSTEIN LLP
90 Park Avenue
New York, NY 10016

EXAMINER

ROOKE, AGNES BEATA

ART UNIT	PAPER NUMBER
----------	--------------

1656

MAIL DATE	DELIVERY MODE
-----------	---------------

11/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/755,086	Applicant(s) LAWRENCE, DAVID S.	
	Examiner AGNES B. ROOKE	Art Unit 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 70, 79, 80, 82, 84, 92-94, 96, 101, 110, 111, 113, 115, and 120 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/07/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are Claims 49, 56-71, 73-80, 82-84, 86-123, 127-131, 133, 134, 137-147 .

Continuation of Disposition of Claims: Claims rejected are 49,56-69,71,73-78,83,86-91,95,97-100,102,122,123,127-131,133,134,137-143,146 and 147.

DETAILED ACTION

This office action is reopened in view of the new rejection being applied to the pending claims.

Status of Claims

Claims 49, 56-69, 71, 73-78, 83, 86-91, 95, 97-100, 102, 122, 123, 127-131, 133-134, and 137-143, 146, and 147 are under examination.

Claims 1-48, 50-55, 72, 81, 85, 124-126, 132, 135, and 136 are cancelled.

Claims 70, 79, 80, 82, 84, 92-94, 96, 101, 110, 111, 113, 115, and 120 are withdrawn.

Claims 49, 56-71, 73-80, 82-84, 86-123, 127-131, 133, 134, 137-147 are pending.

IDS

The IDS submitted on 05/07/2008 has been reviewed and signed by the examiner.

Objection to Claims

Claim 57 is objected to because it has the same scope as claim 56.

Claims 88, 140, and 141 are objected to because the chemical structures are represented by straight lines and one skilled in the art would not be able to discern how many carbon bonds are represented by the structure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 49, 56, 60-69, 73-78, 83, 86, 87, 123, 134, and 137-139 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al., "Design and Synthesis of a Fluorescent Reporter of Protein Kinase Activity," J. Am. Chem. Soc. 2002, 124, pages 3840-3841.

Chen et al. teach the structure of the substrate of claim 49 on page 3840, left column, and on page 3841, left column, Scheme 1. (see structure three, respectively, of claim 49).

Further, on page 3841 different linkers are discussed and specific examples of such linkers are provided in Table 1. (instant claims 49, 56, 60-69, 73, 89, 123, 134, 137-139). (see structures four and five, respectively, of claim 49).

Chen et al. teach the exact chemical compound and LINKER. See page 3841, left column, last structure presented at the bottom of scheme 1. (instant claim 89).

Chen et al. teach that different linkers were inserted between the peptide and the fluorophore, which might allow the serine moiety to be optimally accommodated within the active site. See also Scheme 1 and Table 1 on page 3841. (instant claims 56 and 67, 83, 86, 138, 139).

Art Unit: 1656

Chen et al. teach that there has been widespread interest in developing sensors of protein kinase activity, where specific intracellular kinases are activated in response to stimulus of a fluorophore positioned near the site of phosphorylation. See page 3840, left column; where the N-terminus of the peptide NH₂-Ser-Phe-Arg-Arg-Arg-Arg-resin, serves as a substrate for protein kinase C (PKC). See page 3840, right column, second paragraph. (instant claims 56, 67, 68, 74, 78). (see claim 56 wherein the peptide comprises serine).

Chen et al. teach that protein kinases will phosphorylate alcohol-containing residues attached to the N- or C-terminus of appropriately designed peptides; and where a free carboxylate can be activated and condensed with the N-terminus of the peptide NH₂-Ser-Phe-Arg-Arg-Arg-Arg-resin. See page 3840, right column, second paragraph. (instant claims 73-77).

Chen et al. teach that several fluorophore-LINKER-peptide analogues were identified that display promising enzymological and photophysical properties (Table 1); where N-methyl glycine serves as the LINKER in the lead protein kinase substrate, where the phosphorylation of the latter generates a 264% enhancement in fluorescence intensity. See page 3841, right column. (instant claims 60-66, 83, 86, 87).

Claims 49, 56-69, 71, 73-78, 83, 86-91, 95, 97-100, 102, 122, 123, 127-131, 133-134, and 137-143, 146, and 147 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (US 2004/0166553 A1).

Art Unit: 1656

Nguyen et al. teach a photoactivatable protein kinase C sensor peptide with a fluorophore LINKER. See Figure 59A or Figure 59B. Nguyen et al. teach that caged kinase substrate can comprise fluorophores at either, or both ends of the peptide (thus N or C terminal). See Nguyen claims 18-28. (instant claims 49, 56-69, 71-78, 83, 86- 91, 95, 97-100, 102, 129-131, 133, 140-143, 146, 147). (see Figures 59A and 59B for FRRRK).

Nguyen et al. teach a photoactivable protein kinase C sensor peptide and use of this sensor in assays characterizing protein kinase C inhibitor. See [0543]; and where the sensors can comprise a substrate for PKC and an NBD fluorophore whose fluorescence changes upon phosphorylation of the adjacent serine. (instant claims 56, 78, 91-93, where the NBD is the 7-nitro-2-oxa-diazole derivative).

Nguyen et al. teach also the substrate that comprises a lipid. See [0027]; where the substrate can comprise a carrier. See [0027]. (instant claims 71, 102).

Nguyen et al. teach a caged chelating agent and a caged metal ion. See [0045]. (instant claims 127, 128); and caged fluorescent dye. See [0304], [0309]. (instant claims 129-131)

Nguyen et al. teach delivery of caged sensors into living organisms, which inherently require a pharmaceutically acceptable composition. See [0398] (instant claims 138-143, 146-147).

Conclusion

No claims are allowed.

Art Unit: 1656

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agnes Rooke whose telephone number is 571-272-2055. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.

AR

/Karen Cochrane Carlson/

Primary Examiner, Art Unit 1656